1035-35-1174 **Fernando Carreon*** (`carreon@math.asu.edu`), Department of Mathematics and Statistics, Arizona State University, P.O. Box 871804, Tempe, AZ 85287. *Singular Limits of Reaction Diffusion Equations of KPP type in an Infinite Cylinder.*

The limit of a scaled reaction diffusion equation of KPP type on an infinite cylinder is analyzed using viscosity solution methods. The reaction term of this equation has two equilibrium states, one stable and the other unstable. The equation is scaled with two small parameters. We show that the solutions of the scaled equation converge locally uniformly to piecewise constant function that attains the equilibrium of the equation, as the parameters approach zero. The regions where the solutions converge to each equilibrium state are characterized through the viscosity solution of a variational inequality. The coefficients of the variational inequality are obtained using concepts from homogenization of elliptic operators. (Received September 19, 2007)

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